

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims

Claim 1 (Currently Amended): A continuity inspection apparatus for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection apparatus comprising:

capacitive coupling means to be capacitively coupled with said first terminal in a non-contact manner to provide a coupling capacitance therebetween;

an inductive element connected to said capacitive coupling means to form a resonance circuit in conjunction with the capacitance yielded by said capacitive coupling means in order to inspect said electrical continuity under a low resistance;

a first lead wire connected to said inductive element;

probe means connected to a second lead wire and to be contacted with said second terminal;

signal inputting means for inputting an inspection signal including an AC component into one of said first and second lead wires; and

signal detecting means for detecting an output of said inspection signal at the other of said first and second lead wires.

Claim 2 (Withdrawn): A continuity inspection apparatus for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection apparatus comprising:

probe means to be directly contacted with said first terminal;

an inductive element connected to said probe means;

a first lead wire connected to said inductive element;

capacitive coupling means connected to a second lead wire and to be capacitively coupled with said second terminal in a non-contact manner to provide a coupling capacitance therebetween;

signal inputting means for inputting an inspection signal including an AC component into one of said first and second lead wires; and

signal detecting means for detecting an output of said inspection signal at the other of said first and second lead wires.

Claim 3 (Withdrawn): A continuity inspection apparatus for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection apparatus comprising:

first capacitive coupling means to be capacitively coupled with said first terminal in a non-contact manner to provide a coupling capacitance therebetween;

an inductive element connected to said first capacitive coupling means to form a resonance circuit in conjunction with the capacitance yielded by said first capacitive coupling means;

a first lead wire connected to said inductive element;

second capacitive coupling means connected to a second lead wire and to be capacitively coupled with said second terminal in a non-contact manner to provide a coupling capacitance therebetween;

signal inputting means for inputting an inspection signal including an AC component into one of said first and second lead wires; and

signal detecting means for detecting an output of said inspection signal at the other of said first and second lead wire.

Claim 4 (Withdrawn): A continuity inspection jig having first and second terminal groups spaced apart each other with leaving a given distance therebetween, said continuity inspection jig comprising:

a lead wire connected to all or part of first ends of said first terminal group so as to apply a continuity inspection signal thereto;

contact sections provided respectively at all or part of second ends of said first terminal group and to be contacted with a board as an inspection object;

one or more inductive elements connected to all or part of said second terminal group; and

electrodes provided respectively at all or part of said second ends of said second terminal group and for forming a coupling capacitance without any contact with a wiring pattern of said board as an inspection object.

Claim 5 (Withdrawn): A continuity inspection apparatus as defined in claim 1 or 2, wherein said capacitive coupling means includes a first flat plate electrode connected to said inductive element, said first flat plate electrode having a principal surface to be faced toward said first terminal so as to form a capacitance with said first terminal.

Claim 6 (Withdrawn): A continuity inspection apparatus as defined in claim 3, wherein said first capacitive coupling means includes a first flat plate electrode connected to said inductive element, said first flat plate electrode having a principal surface to be faced toward said first terminal so as to form a capacitance with said first terminal a flat plate electrode.

Claim 7 (Withdrawn): A continuity inspection apparatus as defined in claim 3, wherein said second capacitive coupling means includes a second flat plate electrode having a principal surface to be faced toward said second terminal so as to form a capacitance with said second terminal.

Claim 8 (Currently Amended): A continuity inspection apparatus as defined in claim 1, wherein said probe means includes a ~~prove~~ probe connected to said second lead wire, said probe connected directly and detachably to said second terminal in the form of a resistance.

Claim 9 (Withdrawn): A continuity inspection apparatus as defined in claim 2, wherein said probe means includes a prove connected to said first lead wire, said probe connected directly and detachably to said second terminal in the form of a resistance.

Claim 10 (Previously Presented): A continuity inspection apparatus as defined in either one of claims 1 to 4 and 6 to 8, wherein said inspection signal is an AC signal.

Claim 11 (Previously Presented): A continuity inspection apparatus as defined in either one of claims 1 to 4 and 6-8, wherein said inspection signal is a pulse signal.

Claim 12 (Original): A continuity inspection apparatus as defined in either one of claims 1 to 3, wherein said board includes a plurality of pattern wires formed thereon, said pattern wires each having first and second terminal groups, wherein said continuity inspection apparatus further includes selecting means for selecting said first terminal from said first terminal group to connect said selected first terminal to said inductive element.

Claim 13 (Original): A continuity inspection apparatus as defined in claim 12, wherein said selecting means is a multiplexer circuit including a plurality of analog switches.

Claim 14 (Original): A continuity inspection apparatus as defined in claim 13, wherein said multiplexer further includes a switch for grounding an output of said terminal which is not selected.

Claim 15 (Original): A continuity inspection apparatus as defined in either one of claims 1 to 3, wherein said board includes a plurality of pattern wires formed thereon, said pattern wires each having first and second terminal groups, wherein said continuity inspection apparatus further includes selecting means for selecting said second terminal from said second terminal group to connect said selected second terminal to said second lead wire.

Claim 16 (Original): A continuity inspection apparatus as defined in claim 15, wherein said selecting means is a multiplexer circuit including a plurality of analog switches.

Claim 17 (Original): A continuity inspection apparatus as defined in claim 16, wherein said multiplexer further includes a switch for grounding an output of said terminal which is not selected.

Claim 18 (Currently Amended): A continuity inspection method for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection method comprising steps of:

positioning a given electrode close to said first terminal to form a coupling capacitance, and connecting a given inductive element to said electrode, followed by connecting a first lead wire to said inductive element and connecting a second lead wire to said second terminal, so as to form a resonance circuit by said first lead wire, inductive element, electrode, coupling capacitance, first terminal, pattern wire, second terminal and second lead wire in order to inspect said electrical continuity under a low resistance;

applying an inspection signal including an AC component to one of said first and second lead wires; and

detecting an output of said inspection signal at the other of said first and second lead wires.

Claim 19 (Withdrawn): A continuity inspection method for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection method comprising steps of:

bringing a first lead wire directly into contact with said first terminal through an inductive element, and capacitively coupling a second lead wire with said second terminal in a non-contact manner to provide a coupling capacitance therebetween, so as to form a resonance circuit by said first lead wire, inductive element, first terminal, pattern wire, second terminal, electrode, coupling capacitance and second lead wire;

applying an inspection signal including an AC component to one of said first and second lead wires; and

detecting an output of said inspection signal at the other of said first and second lead wires.

Claim 20 (Withdrawn): A continuity inspection method for inspecting electrical continuity between first and second terminals of a pattern wire formed on a board, said continuity inspection method comprising steps of:

capacitively coupling an inductive element connected to a first lead wire with said first terminal through a first electrode in a non-contact manner, and capacitively coupling a second lead wire with said second terminal through a second electrode in a non-contact manner, so as to form a resonance circuit by said first lead wire, inductive element, first electrode, coupling capacitance, first terminal, pattern wire, second terminal, second electrode, coupling capacitance and second lead wire;

applying an inspection signal including an AC component to one of said first and second lead wires; and

detecting an output of said inspection signal at the other of said first and second lead wires.

Claim 21 (Original): A continuity inspection method as defined in either one of claims 18 to 20, wherein said inspection signal is an AC signal.

Claim 22 (Original): A continuity inspection method as defined in either one of claims 18 to 21, wherein said inspection signal is a pulse signal.

Claim 23 (Previously Presented): A continuity inspection method as defined in either one of claims 18 to 20, which further includes steps of:

forming a plurality of pattern wires on said board, said pattern wires each having first and second terminal groups; and

selecting said first terminal from said first terminal group to connect said selected first terminal to said inductive element.

Claim 24 (Previously Presented): A continuity inspection method as defined in either one of claims 18 to 20, which further includes step of:

previous to said step of applying an inspection signal, determining a resonance frequency for a pattern wire between first and second terminals of a given reference board by applying an inspection signal to said reference board while changing the frequency of said inspection signal; and

in said step of applying an inspection signal, applying said inspection signal to one of said first and second lead wires with using said determined resonance frequency as a frequency thereof.

Claim 25 (Currently Amended): A continuity inspection method as defined in either one of claims 18 to 20, which further includes step of[[:]] :

in said step of determining a resonance frequency, changing the frequency of said inspection signal for said reference board within a given range having a center frequency defined by a standard frequency determined based on the constant of said inductive element.

Claim 26 (Currently Amended): A continuity inspection method as defined in claim 18 to 20, which further includes step of[[:]] :

in said step of applying an inspecting signal, changing the frequency of said inspection signal for said board as an inspection object within a given range having a center frequency defined by the frequency determined in said step of determining a resonance frequency.

Claim 27 (Previously Presented): A continuity inspection apparatus as defined in either one of claims 1 to 4 and 6-9, which further includes means for changing the frequency of said inspection signal.

Claim 28 (Previously Presented): A computer-readable record medium storing thereon a computer program which achieves a continuity inspection method as defined in either one of claims 18 to 20.

Claim 29 (Currently Amended): A continuity inspection apparatus for inspecting electrical continuity between first and second terminals of a pattern wire formed densely on a board, said continuity inspection apparatus comprising:

a sensor electrode having a dimensional size so as to provide a coupling capacitance falling within the ~~rang~~ range of 50 fF to 1 pF with said pattern wire;

an inductive element connected in parallel or series with said sensor electrode, said inductive element having a constant ranging from 20 mH to 25 μ H in order to inspect said electrical continuity under a low resistance; and

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an oscillator oscillating at a reference frequency falling within the rang of 5 MHz to 10 MHz, said oscillator being adapted to change the frequency thereof in a given range from said reference frequency.

Claim 30 (New): A continuity inspection apparatus as defined in claim 1 or 29, wherein said low resistance ranges from about 10 Ω to about 100 Ω .

Claim 31 (New): A continuity inspection method as defined in claim 18, wherein said low resistance ranges from about 10 Ω to about 100 Ω .